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IN THE ABSTRACT:

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ABSTRACT OF THE DISCLOSURE

The present invention is directed to obtain a ~~statistic multiplexing effect in an image transmission system using terminals stipulated by H. 310 of an ITU-T recommendation.~~ In a network including a first local area ATM network, a second local area ATM network and a public ATM network connected to the first and second ATM local area networks, multiplex gateway devices are interposed between the local area ATM networks and the public ATM network, respectively. The multiplex gateway apparatus includes ATM transmission line units ~~21 to 23~~ for calculating statistical information represented by a mean rate and a peak cell rate of ATM cells in the transmission ATM signal. A statistical multiplexing control unit ~~24~~ conducts rate addition after statistical multiplexing according to the statistical information and determines the rate addition result. A piece-wise constant bit rate control unit ~~25~~ calculates a required piece-wise constant bit rate on the basis of the rate addition result and performs cell multiplex control on the basis of this piece-wise constant bit rate. An ATM cell multiplexing/demultiplexing unit ~~26~~ transmits a transmission statistical multiplex signal according to cell multiplexing control.